

Cell & Tissue Research

Volume 273 1993

Editors

A. Oksche, Giessen (Coordinating Editor)	J.F. Morris, Oxford
H. Altner, Regensburg	B. Scharrer, New York
M.J. Cavey, Calgary	J.R. Sladek, North Chicago
D.E. Kelly, Washington, D.C.	N.J. Strausfeld, Tucson
B. Lofts, Norwich	L. Vollrath, Mainz

Cooperating Editors

A. Björklund, Lund	R.R. Markwald, Milwaukee
A.D. Blest, Canberra	D.R. Nässel, Stockholm
R.A. Cloney, Seattle	R. Pabst, Hannover
K. Dorshkind, Riverside	J.M. Polak, London
A.C. Enders, Davis	E. Reale, Hannover
J.B. Furness, Melbourne	J.-P. Revel, Pasadena
H.G. Hartwig, Düsseldorf	E.M. Rodríguez, Valdivia
N. Hirokawa, Tokyo	B. Russell, Chicago
T. Hökfelt, Stockholm	D.W. Scheuermann, Antwerp
A.F. Holstein, Hamburg	H. Schmalbruch, Copenhagen
R.O. Kelley, Albuquerque	A. Tixier-Vidal, Paris
H.-W. Korf, Frankfurt/M.	E.D. Wachsmuth, Basel
B. Krisch, Kiel	R.L. Wood, Los Angeles
N.J. Lane, Cambridge	



Springer International

Cell and Tissue Research

This journal was founded in 1924 as the *Zeitschrift für Zellen- und Gewebelehre*, from Vol. 2 (1925) it was published with the subtitle: Continuation of the Schultze-Waldeyer-Hertwig Archiv für mikroskopische Anatomie. *Zeitschrift für Zellforschung und mikroskopische Anatomie* (Vols. 1–20) (1934) as: *Zeitschrift für wissenschaftliche Biologie* (Abteilung B) edited by R. Goldschmidt, W. von Möllendorff, H. Bauer, J. Seiler. Vols. 2–28 (1938) edited by R. Goldschmidt and W. von Möllendorff. Vols. 29–33 (1944) as: *Zeitschrift für Zellforschung und mikroskopische Anatomie*, Abteilung A, Allgemeine Zellforschung und mikroskopische Anatomie, edited by W. von Möllendorff and J. Seiler; from Vol. 34 without the subtitle, Abteilung A, Allgemeine Zellforschung und mikroskopische Anatomie. From Vol. 34 (1949) edited by W. Bargmann, J. Seiler; from Vol. 53 (1960) edited by W. Bargmann, B. Scharrer, J. Seiler; from Vol. 83 (1967) edited by W. Bargmann, D.S. Farner, A. Oksche, B. Scharrer, J. Seiler; from Vol. 125 (1972) edited by W. Bargmann, D.S. Farner, F. Knowles, A. Oksche, B. Scharrer. Beginning with Vol. 125 (1972) with the subtitle *Cell and Tissue Research*, beginning with Vol. 148 (1974) under the title *Cell and Tissue Research* and the subtitle *Continuation of Zeitschrift für Zellforschung und mikroskopische Anatomie* and beginning with Vol. 235 (1984) under the title *Cell and Tissue Research*. Beginning with Vol. 164 (1975), edited by W. Bargmann, D.S. Farner, B. Lofts, A. Oksche, B. Scharrer and L. Vollrath; As of Vol. 193 (1978), edited by D.S. Farner, B. Lofts, A. Oksche (Coordinating Editor), B. Scharrer and L. Vollrath; from Vol. 227 (1981), edited by D.S. Farner, B. Lofts, J.F. Morris, A. Oksche (Coordinating Editor), B. Scharrer and L. Vollrath; from Vol. 228 (1983), edited by D.S. Farner, D.E. Kelly, B. Lofts, J.F. Morris, A. Oksche (Coordinating Editor), B. Scharrer and L. Vollrath. Beginning with Vol. 235 (1984), title changed to *Cell and Tissue Research* (no subtitle). As of Vol. 251 (1988), edited by H. Altner, D.S. Farner, B. Lofts, J.F. Morris, A. Oksche (Coordinating Editor), B. Scharrer, N.J. Strausfeld and L. Vollrath. Beginning with Vol. 252/3 (1988), M.J. Cavey became one of the editors. From Vol. 254/1 (1988), edited by H. Altner, M.J. Cavey, B. Lofts, J.F. Morris, A. Oksche (Coordinating Editor), B. Scharrer, N.J. Strausfeld and L. Vollrath. Starting with Vol. 268/1 (1992), J.R. Sladek became one of the editors.

Published: Vols. 1–33 (1924–1947) Julius Springer, Berlin, Vols. 34–35 (1948–1950) Springer, Wien, from Vol. 36 (1951) Springer, Berlin, Heidelberg.

Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review,

or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, if any, as well as by the responsible authorities at the institute where the work has been carried out; that if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the publisher; and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.

All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.

The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA: Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0302-766X, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

This journal is included in the Springer Journals Preview Service, i.e. the tables of contents and BiblioAbstracts are available via Internet several weeks before the new issue reaches the subscribers. Tables of contents are free of charge; BiblioAbstracts are available for a small annual fee. Details can be obtained by sending an e-mail message containing the line help to svjps@dhdspri6.bit-net.

Printers: Universitätsdruckerei H. Stürtz AG, Würzburg

© Springer-Verlag Berlin · Heidelberg 1993
Springer-Verlag GmbH & Co. KG
D-14197 Berlin 33, Germany
Printed in Germany

Contents of Volume 273

- Alber R → Layer PG
Amano O, Yoshitake Y, Nishikawa K, Iseki S: Basic fibroblast growth factor in rat salivary glands 467-474
Ancil M → Steffensen I
Andries LJ, Brutsaert DL: Endocardial endothelium in the rat: cell shape and organization of the cytoskeleton 107-117
Anglade I, Zandbergen T, Kah O: Origin of the pituitary innervation in the goldfish 345-355
Araki M → Nonaka T
Barenton B → Morel G
Barrenechea MA → López J
Berg TK van den → Poppel MNM van
Bergmann M → Vliegen MK
Bertram M, Schröder JM: Developmental changes at the node and paranode in human sural nerves: morphometric and fine-structural evaluation 499-509
Biewenga J → Poppel MNM van
Bodegas ME, Montuenga LM, Polak JM, Sesma P: Immunohistochemical colocalization of 7B2 and 5HT in the neuroepithelial bodies of the lung of *Rana temporaria* 137-140
Boer HH → Kerkhoven RM
Boer-Brouwer M de → Dissel-Emiliani FMF van
Bohrmann J, Haas-Assenbaum A: Gap junctions in ovarian follicles of *Drosophila melanogaster*: inhibition and promotion of dye-coupling between oocyte and follicle cells 163-173
Boivin G → Morel G
Braun JS, Kaissling B, Le Hir M, Zenker W: Cellular components of the immune barrier in the spinal meninges and dorsal root ganglia of the normal rat: immunohistochemical (MHC class II) and electron-microscopic observations 209-217
Brutsaert DL → Andries LJ
Buchner E, Buchner S, Burg MG, Hofbauer A, Pak WL, Pollack I: Histamine is a major mechanosensory neurotransmitter candidate in *Drosophila melanogaster* 119-125
Buchner S → Buchner E
Buffa R → D'Este L
Burg MG → Buchner E
Burnstock G → Tanaka K
Burrell MA → López J
Carboni N → D'Este L
Casu C → D'Este L
Chan FL, Inoue S, Leblond CP: The basement membranes of cryofixed or aldehyde-fixed, freeze-substituted tissues are composed of a lamina densa and do not contain a lamina lucida 41-52
Chaturvedi PK, Johnson L: Architectural arrangement of stages of the spermatogenic cycle within human seminiferous tubules is related to efficiency of spermatogenesis 65-70
Chavassieux P → Morel G
Chieffi-Baccari G, Di Matteo L, d'Istria M, Minucci S, Serino I, Varriale B: The effects of gonadectomy and testosterone treatment on the Harderian gland of the green frog, *Rana esculenta* 201-208
Contard P, Jacobs L II, Perlsh JS, Fleischmajer R: Collagen fibrillogenesis in a three-dimensional fibroblast cell culture system 571-575
Croll RP → Kerkhoven RM
Cuisinier FJG, Steuer P, Senger B, Voegel JC, Frank RM: Human amelogenesis: high resolution electron microscopy of nanometer-sized particles 175-182
D'Este L, Buffa R, Casu C, Carboni N, Pelagi M, Siccardi AG, Renda T: Immunohistochemical localization of chromogranin A and B in endocrine cells of the alimentary tract of the adult lizard *Podarcis sicula* 335-344
Dey RD, Zhu W: Origin of galanin in nerves of cat airways and colocalization with vasoactive intestinal peptide 193-200
Di Matteo L → Chieffi-Baccari G
Dissel-Emiliani FMF van, Boer-Brouwer M de, Spek ER, Donk JA van der, Rooij DG de: Survival and proliferation of rat gonocytes in vitro 141-147
d'Istria M → Chieffi-Baccari G
Donk JA van der → Dissel-Emiliani FMF van
Downham D → Lexell J
Dubois PM → Morel G
Duncker M → Schmid A
Dupree JL → Kingsley RJ
Ehret G → Wiemann M
Esteban MA → Meseguer J
Fernández-Llebrez P → Jiménez AJ
Fleischmajer R → Contard P
Fleissner G → Fleissner G
Fleissner G, Fleissner G, Frisch B: A new type of putative non-visual photoreceptors in the optic lobe of beetles 435-445
Frank RM → Cuisinier FJG
Frisch B → Fleissner G
Gan Y → Plenz G
Goldberg M → Gritli A
Green P, Hartenstein AY, Hartenstein V: The embryonic development of the *Drosophila* visual system 583-598
Gritli A, Septier D, Goldberg M: Suramin-induced mucopolysaccharidosis in rat incisor 53-64
Gronenberg W, Peeters C: Central projections of the sensory hairs on the gema of the ant *Diacamma*: substrate for behavioural modulation? 401-415
Groome NP → Vliegen MK
Haas-Assenbaum A → Bohrmann J
Haften T van, Schooneveld H: Diffuse serotonergic neurohemal systems associated with cerebral and suboesophageal nerves in the head of the Colorado potato beetle *Leptinotarsa decemlineata* 327-333
Haften T van, Smid HM, Schooneveld H: Serotonergic innervation of the alimentary canal of the Colorado potato beetle, *Leptinotarsa decemlineata*: structural and functional aspects 475-485
Hartenstein AY → Green P
Hartenstein V → Green P
Hassall CJS → Tanaka K
Hirst BH → Jepson MA
Hirst GL → Jepson MA
Hofbauer A → Buchner E
Hoffmann W → Schwarz H
Honda M → Ohshima S
Huyssseune A → Sire J-Y
Ikeda Y, Yamashina S: Developmental changes in intestinal globule leukocytes of normal rats 447-455
Inoue S → Chan FL
Iseki S → Amano O
Ishimaru Y → Ohshima S
Jacobs L II → Contard P
Jarvis J → Lexell J
Jepson MA, Simmons NL, Hirst GL, Hirst BH: Identification of M cells and their distribution in rabbit intestinal Peyer's patches and appendix 127-136
Jiménez AJ, Pérez-Figares JM, Rodríguez EM, Fernández-Llebrez P, Oksche A: Synapse-like contacts between axons of the pineal tract and the subcommissural organ in *Rana perezi* (Anura) and their absence in *Carassius auratus* (Teleostei): ultrastructural tracer studies 317-325
Jönsson A-C: Co-localization of peptides in the Brockmann bodies of the cod (*Gadus morhua*) and the rainbow trout (*Oncorhynchus mykiss*) 547-555
Johnson L → Chaturvedi PK
Joss JMP → Smith CA
Józsa R, Mess B: Galanin-like immunoreactivity in the chicken brain 391-399
Kah O → Anglade I
Kaissling B → Braun JS
Kerkhoven RM, Ramkema MD, Van Minnen J, Croll RP, Pin T, Boer HH: Neurons in a variety of molluscs react to antibodies raised against the VD₁/RPD₂ α -neuropeptide of the pond snail *Lymnaea stagnalis* 371-379
Kimura H → Nonaka T
Kingsley RJ, Dupree JL: Seasonal localization of a collagenous protein in the organic matrix of spicules from the gorgonian *Leptogorgia virgulata* (Cnidaria: Gorgonacea) 309-316
Lakes-Harlan R, Pollack GS: Pathfinding of peripheral neurons in the central nervous system of an embryonic grasshopper (*Chorthippus biguttulus*) 97-106
Langecker TG, Schmale H, Wilkens H: Transcription of the opsin gene in degenerate eyes of cave-dwelling *Astyanax fasciatus* (Teleostei, Characidae) and of its conspecific

- epigeal ancestor during early ontogeny 183-192
- Larsen PJ, Mikkelsen JD: The suprachiasmatic nucleus of the mink (*Mustela vison*): apparent absence of vasopressin-immunoreactive neurons 239-247
- Layer PG, Weikert T, Alber R: Cholinesterases regulate neurite growth of chick nerve cells in vitro by means of a non-enzymatic mechanism 219-226
- Le Hir M → Braun JS
- Leblond CP → Chan FL
- Lexell J, Jarvis J, Downham D, Salmons S: Stimulation-induced damage in rabbit fast-twitch skeletal muscles: a quantitative morphological study of the influence of pattern and frequency 357-362
- López J, Barrenechea MA, Burrell MA, Sesma P: Immunocytochemical study of the lung of domestic fowl and pigeon: endocrine cells and nerves 89-95
- López-Ruiz A → Meseguer J
- Loughton BG → Sevala VM
- Maake C, Reinecke M: Immunohistochemical localization of insulin-like growth factor 1 and 2 in the endocrine pancreas of rat, dog, and man, and their coexistence with classical islet hormones 249-259
- Maguire SM → Millar MR
- Masuzawa T → Nonaka T
- Merks T, Schulze-Bonhage A, Wittkowski W: Photoperiod-dependent changes in exocytotic activity in the hypophyseal pars tuberalis of the Djungarian hamster, *Phodopus sungorus* 287-291
- Meseguer J, Esteban MA, Muñoz J, López-Ruiz A: Ultrastructure of the peritoneal exudate cells of seawater teleosts, seabream (*Sparus aurata*) and sea bass (*Dicentrarchus labrax*) 301-307
- Mess B → Józsa R
- Meunier PJ → Morel G
- Mikkelsen JD → Larsen PJ
- Millar MR, Sharpe RM, Maguire SM, Saunders PTK: Cellular localisation of messenger RNAs in rat testis: application of digoxigenin-labelled ribonucleotide probes to embedded tissue 269-277
- Minucci S → Chieffi-Baccari G
- Mohanty B, Takahara H, Tachibana T, Naik DR, Nogami H: Light- and electron-microscopic immunocytochemistry of somatotropes in the anterior pituitary gland of European ferret, *Mustela putorius furo* 427-434
- Montuenga LM → Bodegas ME
- Morel G, Chavassieux P, Barenton B, Dubois PM, Meunier PJ, Boivin G: Evidence for a direct effect of growth hormone on osteoblasts 279-286
- Morris CE → Steffensen I
- Moskalewski S → Thyberg J
- Müller PK → Plenz G
- Müller-Schmid A → Schwarz H
- Muñoz J → Meseguer J
- Nässel DR: Neuropeptides in the insect brain: a review 1-29
- Nagatsu I → Nonaka T
- Naik DR → Mohanty B
- Nieschlag E → Vliegen MK
- Nishikawa K → Amano O
- Nogami H → Mohanty B
- Nonaka T, Araki M, Kimura H, Nagatsu I, Satoh F, Masuzawa T: The capacity of central and peripheral catecholaminergic neurons to innervate the pineal organ and cerebral cortex of the rat: in vitro immunohistochemical observations 525-531
- Ogawa M → Ohshima S
- Ohkawara S → Ohshima S
- Ohshima S, Ishimaru Y, Honda M, Ohkawara S, Ogawa M: A monoclonal antibody disrupting cell-cell adhesion of rat ascites hepatoma cells 363-370
- Oksche A → Jiménez AJ
- Pak WL → Buchner E
- Peeters C → Gronenberg W
- Pelagi M → D'Este L
- Pérez-Figares JM → Jiménez AJ
- Perlish JS → Contard P
- Pin T → Kerkhoven RM
- Plenz G, Gan Y, Raabe HM, Müller PK: Expression of vimentin in chicken cartilage and bone 381-389
- Polak JM → Bodegas ME
- Pollack GS → Lakes-Harlan R
- Pollack I → Buchner E
- Poppel MNM van, Berg TK van den, Rees EP van, Sminia T, Biewenga J: Reticulum cells in the ontogeny of nasal-associated lymphoid tissue (NALT) in the rat 577-581
- Raabe HM → Plenz G
- Ramkema MD → Kerkhoven RM
- Rees EP van → Poppel MNM van
- Reinecke M → Maake C
- Renda T → D'Este L
- Rodríguez EM → Jiménez AJ
- Rooij DG de → Dissel-Emiliani FMF van
- Salmons S → Lexell J
- Sato T → Wake K
- Satoh F → Nonaka T
- Saunders PTK → Millar MR
- Schlatt S → Vliegen MK
- Schmale H → Langecker TG
- Schmid A, Duncker M: Histamine immunoreactivity in the central nervous system of the spider *Cupiennius salei* 533-545
- Schmid M → Haeften T van
- Schooneveld H → Haeften T van
- Schröder JM → Bertram M
- Schulze-Bonhage A → Merks T
- Schwarz H, Müller-Schmid A, Hoffmann W: Ultrastructural localization of ependymins in the endomeninx of the brain of the rainbow trout: possible association with collagen fibrils of the extracellular matrix 417-425
- Senger B → Cuisinier FJG
- Septier D → Gritli A
- Serino I → Chieffi-Baccari G
- Sesma P → Bodegas ME
- Sesma P → López J
- Sevala VL → Sevala VM
- Sevala VM, Sevala VL, Loughton BG: Insulin-like molecules in the beetle *Tenebrio molitor* 71-77
- Seymour-Laurent KJ → Watson AHD
- Sharpe RM → Millar MR
- Siccardi AG → D'Este L
- Simmons NL → Jepson MA
- Sire J-Y, Huysseune A: Fine structure of the developing frontal bones and scales of the cranial vault in the cichlid fish *Hemichromis bimaculatus* (Teleostei, Perciformes) 511-524
- Smid HM → Haeften T van
- Sminia T → Poppel MNM van
- Smith CA, Joss JMP: Gonadal sex differentiation in *Alligator mississippiensis*, a species with temperature-dependent sex determination 149-162
- Spek ER → Dissel-Emiliani FMF van
- Steffensen I, Anctil M, Morris CE: Neural structures in the receptive field of pleural ganglion mechanosensory neurons of *Aplysia californica* 487-497
- Steuer P → Cuisinier FJG
- Tachibana T → Mohanty B
- Takahara H → Mohanty B
- Tanaka K, Hassall CJS, Burnstock G: Distribution of intracardiac neurones and nerve terminals that contain a marker for nitric oxide, NADPH-diaphorase, in the guinea-pig heart 293-300
- Thyberg J, Moskalewski S: Relationship between the Golgi complex and microtubules enriched in dephosphorylated or acetylated α -tubulin: studies on cells recovering from nocodazole and cells in the terminal phase of cytokinesis 457-466
- Van Minnen J → Kerkhoven RM
- Varriale B → Chieffi-Baccari G
- Vliegen MK, Schlatt S, Weinbauer GF, Bergmann M, Groome NP, Nieschlag E: Localization of inhibin/activin subunits in the testis of adult nonhuman primates and men 261-268
- Voegel JC → Cuisinier FJG
- Wake K, Sato T: Intralobular heterogeneity of perisinusoidal stellate cells in porcine liver 227-237
- Watson AHD, Seymour-Laurent KJ: The distribution of glutamate-like immunoreactivity in the thoracic and abdominal ganglia of the locust (*Schistocerca gregaria*) 557-570
- Weikert T → Layer PG
- Weinbauer GF → Vliegen MK
- Wiemann M, Ehret G: Subcellular localization of immunoreactive oxytocin within thymic epithelial cells of the male mouse 79-87
- Wilkens H → Langecker TG
- Wirsig-Wiechmann CR: Peripheral projections of nervus terminalis LHRH-containing neurons in the tiger salamander, *Ambystoma tigrinum* 31-40
- Wittkowski W → Merks T
- Yamashina S → Ikeda Y
- Yoshitake Y → Amano O
- Zandbergen T → Anglade I
- Zenker W → Braun JS
- Zhu W → Dey RD